Artificial Enzyme-Powered Microfish for Water-Quality Testing

*Jahir Orozco, Victor García-Gradilla, Mattia D'Agostino, Wei Gao, Allan Cortés and Joseph Wang**

Department of Nanoengineering, University of California, San Diego, La Jolla, California 92093

*E-mail: josephwang@ucsd.edu

Video Captions.

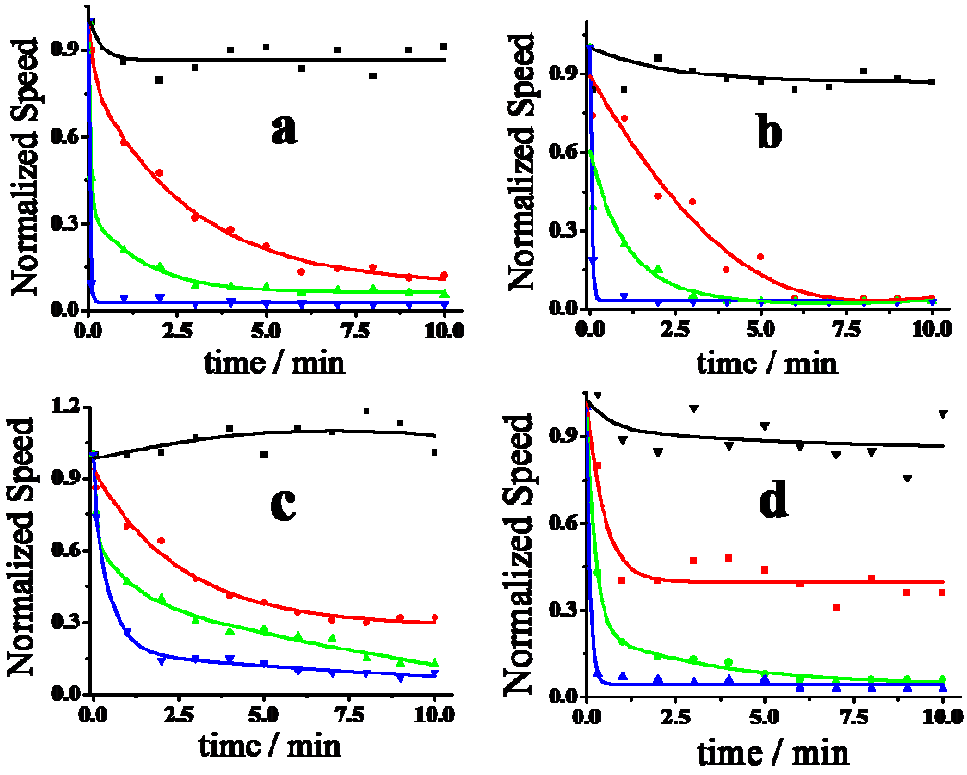
Video 1. Pollutant effect on the microfish locomotion speed after exposure the microengine to 0.2 mM Cu.

Video 2. Pollutant effect on the microfish locomotion speed after exposure the microengine to 25 μM NaN_3.

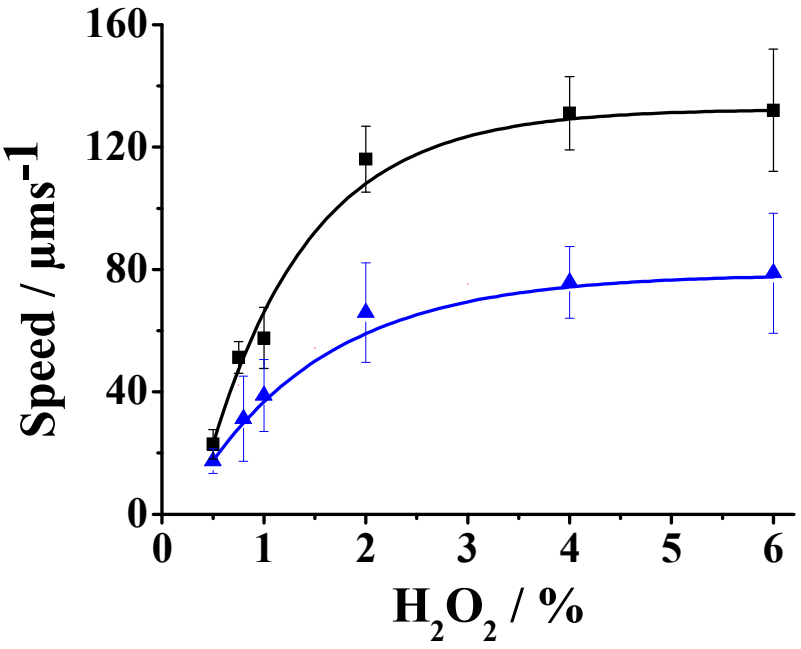
Video 3. Pollutant effect on the microfish locomotion speed after exposure the microengine to 625 mM aminoriazole.

Video 4. Pollutant effect on the microfish locomotion speed after exposure the microengine to 100 μM Hg.

Figures



S.I. Figure 1. Changes in swimming behavior of microfish upon exposure to different concentrations of pollutants as a function of time. From up to down (black, red, green and blue, respectively): a) 0, 50, 100, 200 μM Hg; b) 0, 0.2, 0.6, 1.0 mM Cu; c) 0, 2.5, 12.5, 25.0 μM sodium azide; and d) 0, 375, 625, 750 mM aminotriazole. Curves were plotted by tracking the normalized microfish speed after exposure o the pollutants.



S.I. Figure 2. Determination of substrate saturation conditions and the inhibitor (Cu) effect on the enzyme-substrate affinity. Graph was plotted by tracking the normalized microfish speed at different H_2O_2 concentrations of before (black squares) and b) after (blue triangles) one-min exposure to 6 mM Cu. Error bars represent the standard deviation of 5 measurements